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ABSTRACT

This document presents the first report of the Task Force on Environmental Education in Massachusetts. The Task Force was charged with 3 priorities during its first year of operation: (1) to assess all aspects of environmental education programs currently in progress at all educational levels within the Commonwealth; (2) to determine the environmental education needs within the Commonwealth and to establish priorities within those needs; and (3) to present a proposal for an on-going state planning system for environmental education. The prime recommendation of the Task Force is that a quasi-public organization be immediately established to catalyze and focus the private and public environmental education effort in the Commonwealth. Specifically, a public trust organization named Trust for Environmental Education (TRUST-EE) is recommended. As of publication date of this report, the legal processes of establishing TRUST-EE had already begun. Other recommendations that would stem from the organization of TRUST-EE include elementary and secondary school objectives; higher education objectives; public non-school education objectives; and governmental agencies and environmental education objectives. (HS)

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ENVIRONMENTAL EDUCATION IN MASSACHUSETTS

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MASSACHUSETTS ADVISORY COMMITTEE ON CONSERVATION EDUCATION
ENVIRONMENTAL EDUCATION TASK FORCE
MASSACHUSETTS AUDUBON SOCIETY
LINCOLN, MASSACHUSETTS 01773
TEL. (617) 259-9500

CHARLES E. ROTH
CHAIRMAN
HARRY A. S. READ
EXECUTIVE SECRETARY

November 1972

Dear Friends of Environmental Education:

The Task Force on Environmental Education is happy to enclose a copy of our first assessment and recommendations for environmental education in the Commonwealth. If you are among those who answered our questionnaire, we hope you will recognize some of your inputs.

We are very anxious to get your responses to our recommendations. Where do you feel we have missed the boat? To what have we given too much/too little emphasis? Do you have some thoughts on implemention? Please forward your thoughts to me, Harry Read, to the above address.

You will notice a lack of appendices in the document although they are referred to. This is an economy. Anyone who wants the appendices may request them in mimeo form.

A further note of interest is that we have moved ahead with our prime recommendations and have begun the legal processes of establishing a Trust for Environmental Education to work for implementation of our recommendations once the Task Force has completed its work in June.

If you have any other questions, please feel free to write or call me, or Chairman Charles E. Roth also at the Audubon Society.

Sincerely,

Harry A. S. Read

Harry A. S. Read
Executive Secretary

Enc.

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ENVIRONMENTAL EDUCATION IN MASSACHUSETTS
1972 ASSESSMENT WITH RECOMMENDATIONS

Submitted to:

HIS EXCELLENCY, FRANCIS W. SARGENT
GOVERNOR OF THE COMMONWEALTH OF MASSACHUSETTS

by:

The Massachusetts Advisory Committee on Conservation Education's Task Force for Environmental Education

Charles E. Roth, Chairman

Warren M. Little, Executive Secretary

Funded by a Grant under P. L. 91-516 Environmental Education Act of 1970

Under the Auspices of:
The Office of Environmental Education
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October, 1972

MASSACHUSETTS ADVISORY COMMITTEE ON CONSERVATION EDUCATION

John W. Brainerd	Professor of Biology, Springfield College
Joseph W. Brine, Jr.	President, Brine Tree Surgery, Inc.
Bryant R. Chaplin	Editor and Publisher of "Campfire Chatter", North American Family Camping Association
Joseph P. Freitus	Director Environmental Education, Lincoln-Sudbury Regional High School
Raymond L. Gehling, Jr.	Senior Supervisor of Environmental Education, Massachusetts Department of Education
Warren M. Little	Director of Education, The New England Aquarium and former Executive Secretary of the Environmental Education Task Force
Norton H. Nickerson	Associate Professor, Biology Department, Tufts University
William B. Nutting	Professor of Zoology, University of Massachusetts
Arnold D. Rhodes	Head, School of Forestry and Wildlife Management, University of Massachusetts
John W. Rogers	Rockland Superintendent of Schools
Charles E. Roth	Director of Education, Massachusetts Audubon Society
Frances Sherburne	Secretary, Massachusetts Association of Conservation Districts
Frank L. Sullivan	Assistant Professor, Biology Department, State College at Salem
J. Kenneth Taylor	Professor, Science Department, State College at Westfield
Laurence W. Zuelke	Landscape Architect, Architects Collaborative

ENVIRONMENTAL EDUCATION TASK FORCE MEMBERS AND THEIR AFFILIATIONS

Mrs. Augusta Bailey	Vice-Chairman, Boston Conservation Commission and founder Roxbury-Dorchester Beautification Association. Mrs. Bailey is representative of inner city community action groups and a black viewpoint.
Dr. Max Bogart	Associate Commissioner for Curriculum and Instruction, Massachusetts Department of Education. Dr. Bogart is representative of the state elementary and secondary schooling structure.
Miss Kathleen Boles	(r), member of the Massachusetts Education Commissioner's Youth Advisory Council. A Saugus High School student, Miss Boles is representative of high school youth.
Dr. John Bremer	Academic Dean of Newton College of the Sacred Heart and former Director of Philadelphia's Parkway Program. Dr. Bremer is representative of private colleges and the open classroom approach to education.
Dr. Dayton Carritt	(r), former Director, Institute for Man and Environment, University of Massachusetts. An oceanographer by profession, Dr. Carritt is representative of the interests of the state university.
Dr. Elizabeth Cirino	Professor of Biology, Bridgewater State College and an official of the Massachusetts Teacher's Association. Dr. Cirino is representative of the state college system and the M.T.A.

Mr. Matthew M. Connolly, Jr.	Director of Conservation Services, Department of Natural Resources and former Assistant to the Commissioner for Research and Planning. Mr. Connolly is representative of the interests of the Massachusetts Department of Natural Resources.
Mr. Chandler Gifford, Jr.	Gifford and Company. Mr. Gifford is active in the field of environmental education and is our representative of business and industry.
Mr. George Hamilton, Jr.	Director of the Environmental Center, Berkshire Community College. Mr. Hamilton is representative of community college interests.
Mr. James R. Howard	Former Director of the Education Cooperative (EDCO), a multi-community educational cooperative originally established under Title III, ESEA. Mr. Howard is representative of urban-suburban educational innovation and a black viewpoint.
Mr. John H. B. Irving	(r), former Director of Education Division, WGBH Educational Foundation. Mr. Irving is representative of the communications media interest.
Mr. James Laughlin	Secretary-Treasurer, State Labor Council, A.F.L.-C.I.O. Mr. Laughlin is representative of organized labor interests.
*Dr. Warren M. Little	Director of Education, the New England Aquarium and former Executive Secretary of the Environmental Education Task Force. Dr. Little is representative of private school interests and those of private educational organizations.
Mr. Roger Marshall	Architect. Mr. Marshall is past chairman of the Massachusetts Conservation Council and an official of the New England Chapter of the Sierra Club. He is representative of the interests of private environmental organizations.
Mr. Patrick Mogan	Education Director, Lowell Model Cities Program and former Assistant Superintendent, Lowell Public Schools. Mr. Mogan is representative of educational administrators and inner city educational interests.
Rep. James Moseley	Massachusetts General Court (R). Prior to his election, Rep. Moseley was Trust Officer for the Fund For The Preservation of Natural Areas and Wildlife. He is representative of both legislative and foundation interests.
*Dr. Norton H. Nickerson	Associate Professor of Biology, Tufts University and 1st Vice President, Massachusetts Association of Conservation Commissions. Dr. Nickerson is representative of the interests of the conservation commissions and private educational institutions.
Mr. John F. Nolan	President, Massachusetts College of Arts. Mr. Nolan is representative of state colleges.
*Mr. Charles E. Roth	Director of Education, Massachusetts Audubon Society and Chairman, Massachusetts Advisory Committee for Conservation Education and Massachusetts Task Force on Environmental Education. Mr. Roth is representative of the interests of private conservation organizations and elementary and secondary teachers.
*Miss Frances Sherburne	Executive Assistant, Massachusetts Audubon Society and Chairman, Middlesex Conservation District. As Secretary of the Mass. Association of Conservation Districts, Miss Sherburne is representative of those interests and of private conservation organizations.
Miss Sydney Turner	Assistant to the Governor for Program Policy Development. Miss Turner is representative of college age youth.

Rep. Robert Wetmore	Massachusetts General Court (D). Rep. Wetmore is a member of the House Committee on Natural Resources and has sponsored legislation both in the area of natural resources and environmental education. He is representative of both legislative interests and public concern.
* Mr. Laurence Zuelke	Landscape Architect, Architects Collaborative. Mr. Zuelke is a private consultant on environmental planning and a member of many environmental education groups. Mr. Zuelke is representative of environmental design interests.

* indicates members of the Massachusetts Advisory Committee for Conservation Education

r resigned during year

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A study of this magnitude could not have been completed without a great deal of assistance from many many people who contributed their time to the less dramatic, but extremely important, jobs which must be accomplished in order to produce a complete and comprehensive picture of the current status of environmental education in the Commonwealth.

On the federal level, our gratitude goes to Miss Sylvia Wright of the Office of Environmental Education for her ideas and suggestions and helpful liaison with the Washington office during the grant period.

Within the Commonwealth, our thanks go to Dr. Charles H. W. Foster, Secretary of Environmental Affairs, and Dr. Joseph M. Cronin, Secretary of Educational Affairs, for their active interest in the Task Force and their cover letters for surveying purposes. The Massachusetts Department of Education was also very helpful in allowing the Task Force the services of Raymond L. Gehling, Senior Supervisor of Environmental Education within the Division of Curriculum Services, and for the address labels done for us by the Department's Division of Research and Development. Thanks also go to the Massachusetts College of Art, Mr. John Nolan, President, for the use of their facilities to conduct an all day meeting of the Task Force in January.

Many private organizations provided invaluable assistance. The Massachusetts Audubon Society, which made available a home for the Task Force's paid staff and supplied the Task Force itself with a meeting place, also provided many intangible benefits. The staff of the Hatheway School of Education, particularly Mrs. Polly Braman, Miss Miriam Dickey, Mrs. Margaret McDaniel, Mrs. Ellen Shaw, Mrs. Doris Twohey, Mrs. Joan Irish and Miss Marge Smith all provided services when needed that made the operation that much smoother. Other organizations which were very helpful include the Massachusetts Association of Conservation Commissions, which supplied space in its newsletter to request assistance from commissions in following up the survey questionnaire, as well as address labels and a cover letter for the assessment of the Commissions. The Stop and Shop Foundation should also be acknowledged for its contribution, which allowed Task Force members to meet on an informal basis to form personal relationships which are important in the development of an efficient team effort.

We also wish to express our gratitude to all of the many volunteers who put in countless hours of their time on such tedious tasks as making up lists, collating, folding and stuffing questionnaires, following them up and collecting the results of the over 5,300 survey instruments put out to schools, colleges and organizations within the Commonwealth. Special mention must go to the Governor's Youth Task Force on the Environment, and the students in the Environmental Education Center at the Berkshire Community College, for help in tabulating the results of the questionnaires. Our thanks also go to the thousands of people who took the time to fill out and return the questionnaires.

Finally, we owe a great debt to a group of dedicated citizens who put an enormous amount of time and energy into their efforts on behalf of the Task Force. Such fine people as Mrs. Virginia Risse, Dr. Henry Russell, Miss Theresa Gall, Mr. Andrew Safran, Mrs. Margaret Clements and Miss Cheryl Doucette were of great value to the Task Force, and their efforts are most gratefully acknowledged. In conclusion, the Task Force wishes to take note of the capable secretarial work done by Mrs. Mary D'Antonio, who worked long and hard at meeting deadlines, organizing volunteer help and keeping everyone busy and cheerful throughout the year.

W.M.L.

ENVIRONMENTAL EDUCATION IN MASSACHUSETTS:

AN EVALUATION WITH RECOMMENDATIONS FOR ACTION

1971-1972 REPORT OF THE MASSACHUSETTS TASK FORCE ON ENVIRONMENTAL EDUCATION

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FOREWORD

On May 5, 1961, the Governor signed an Act which established the position of Conservation Education Supervisor within the Commonwealth's Department of Education. Shortly thereafter, The Board of Education appointed the Massachusetts Advisory Committee on Conservation Education (MACCE) to advise the Supervisor of Conservation Education and the Commissioner of Education. Since that time, the MACCE Committee has been responsible for a number of conferences and reports, including recommendations to the Special Commission relative to improving and extending educational facilities in the Commonwealth, which is informally known as the Willis-Harrington Commission. The MACCE Committee has also offered assistance from time to time to the Department of Natural Resources in connection with review of sites for the development of a state environmental center.

In May of 1970, the MACCE Committee established a sub-committee to begin work on the Commonwealth's Commitment to Environmental Education. The sub-committee spent the summer and ensuing year putting together the first efforts towards a State Plan. In October of 1970, the Environmental Education Act (P. L. 91-516) was signed into law by President Nixon. The Act required that all states have a State Plan by the end of 1972.
In April of 1971, the MACCE Committee voted to submit a proposal under the Environmental Education Act for money to set up a Task Force more broadly based than the Committee, and with some paid personnel to carry on the work already accomplished by the MACCE sub-committee. The proposal was one of six state planning grants funded and the Task Force met in September of 1971 to start work in earnest on an environmental education plan for the Commonwealth.

The Task Force was charged with three priorities during its first year of operation:

Its first job was to *assess all aspects of environmental education programs currently in progress* at all educational levels within the Commonwealth. Of particular interest were those programs which involve the participant directly in explorations of natural and man-made environments and those which provide action to resolve environmental programs.

A second priority was to *determine the environmental education needs* within the Commonwealth and *to establish priorities* within those needs. Since priorities change with changing times and a plan can be obsolete when written, a proposal for *an on-going state planning system* was a third priority and a Trust for Environmental Education — TRUST-EE — has been developed for consideration. Such plans or planning systems are required in all of the 50 States if they are to receive further federal funds for environmental education in the future.
Both the Massachusetts Advisory Committee on Conservation Education and its Environmental Education Task Force have put in a considerable amount of time and effort in achieving the three objectives. The Task Force has pulled together a great deal of material into a coherent report which explains not only the current state of environmental education within the Commonwealth, but also defines the needs as seen by educators, federal and state agencies, and public and private organizations from all over the state. These needs have been set up in terms of priorities for implementation by the Commonwealth. The planning system, in the form of a trust instrument and operating procedures for the Trustees, has also been spelled out in detail.

Environmental education has been called "Education that cannot wait". The MACCE Committee and its Task Force are to be complimented in taking the first important steps in the development of a plan for the Commitment of the Commonwealth in this all-important area of education. It is now up to the State to continue an evaluation of these priorities and implement the proposals, as time is crucial in the development of environmentally literate citizens.

PREFACE

To a great many people environmental education is a relatively new term. Evolved from earlier concepts such as conservation education, resource-use education, and outdoor education, environmental education includes many basic ideas from its predecessors, but is more inclusive. It focuses more fully on man as an organism interacting with environment and is more fully concerned with urban-suburban life styles, while retaining complete awareness of rural activities and primary resource production.

Environmental education perceives man as the focus of both environmental and human degradation and restoration, and stresses understanding of the fundamental nature and behavior of human organisms as expressed by their day to day living on this planet.

Fundamental to environmental education is recognition of man as an integral part of the complex ecosystem of planet Earth. Man is seen as part of nature. Human tools and structures are also seen as natural in the same way that coral rock is a natural product of the coral polyp and the nest mounds of ants and termites are a natural result of their activities. Environmental education is as concerned with the man-made surroundings as with the other aspects of the ecosystem.

While many animal species are largely pre-programmed to fit their roles in the ecosystem, man, as a cultural animal, is largely free of such pre-programming. *Man must learn his role or perish.* Thus, environmental education is actively concerned with helping students develop skills for perceiving man-environment relationships and analyzing the many factors that may lead to negative inter-actions. It is further concerned with developing the primary skills for framing and implementing long term solutions and inculcating the will to undertake them.

Environmental education is concerned with both improvement of environment and improvement of education.

Both goals are achievable through interaction of the two components — environment and education. Education is used in a broader sense than mere schooling; it means all of the learning experiences offered by our diverse society. In the phrasing of Paul Brandwein, it is defined as "experience in search of meaning".

Environmental education looks to all segments of society to cooperate in instruction, not only those individuals formally designated as "teachers". Learners need to get the bulk of their facts and impressions as close to the basic sources as possible for truly meaningful learning to take place. In environmental education, the community and the larger world are seen as the basic texts, with books and other media as supplementary material.

Needed are teachers whose primary capacity is to help learners ask the right questions and to help learners develop the skills needed to search out sound and reasonably comprehensive answers. Of secondary importance is the teacher's ability to deliver "right" answers.

This is because environmental education is concerned with helping students develop skills for perceiving man-environment relationships and analyzing the many and diverse factors that attend man-environment problems in search of solutions that they are willing to help implement.

It strives for an open-mindedness that lets us put aside current options for better ones. It has little interest in merely giving training in pre-conceived solutions to environmental issues.

Environmental education is committed to the concept that learning is a life-long process and that few people are too old to learn. We live in a dynamic society characterized by change. Much of what people over thirty learned in formal schooling is factually obsolete. Adults must continue to actively address themselves to keeping abreast of a changing world, if for no other reason than to avoid what Alvin Toffler has termed "future shock". The educators, Postman and Weingartner point up the problems in the following words: [1]

"The tendency seems to be for most 'educational' systems, from patterns of training in 'primitive' tribal societies to school systems in technological societies, to fall imperceptively into a role devoted to the conservation of old ideas, concepts, attitude, skills and perceptions. This happens largely because of the unconsciously held belief that these old ways of thinking and doing are necessary to the survival of the group. And that is largely true, IF the group inhabits an environment in which change occurs very very slowly, or not at all. Survival in a stable environment depends almost entirely on remembering the strategies for survival that have developed in the past, and so the conservation and transmission of these becomes the primary mission of education. But a paradoxical situation develops when change becomes the primary characteristics of the environment. Then the task turns inside out — survival in a rapidly changing environment depends almost entirely upon being able to identify which of the old concepts are relevant to the demands imposed by the new threats to survival, and which are not. Then a new educational task becomes critical: getting the group to unlearn (to 'forget') the irrelevant concept as a prior condition to learning. What we are saying is that selective forgetting is necessary to survival".

Thus, environmental education must encompass the learning process for the whole life cycle of man. It begins with the social interactions of the pre-schooler, encompasses the range of formal schooling and continues with the many non-schooling educational aspects of one world, including such things as mass media, museums, organizations and occupations. No segment of environmental education by itself is sufficient. All are somewhat interlocking and mutually reinforcing. Properly orchestrated, the various segments of our broad educational system have the potential of developing an environmentally literate citizenry with a long term future on this planet. In the current state of fragmentation of effort, the planetary

[1] Neil Postman and Charles Weingartner — *Teaching as a Subversive Activity,* — Dell, 1969

future for the human species as we know it is far less bright. Without intending to be either melodramatic or prophets of doom, it can be said with considerable confidence that long term survival of our culture in a truly viable manner is dependent upon development and implementation in the very near future of a broad-based, integrated system of environmental education, at all levels, both within and outside the traditional system of schooling.

We will know when we have established such a system because behavior towards environment will be changing positively. Only by such behavorial changes can we evaluate our progess. Our goal is the establishment of a universal environmental literacy.

Environmental literacy is awareness of the basic principles that govern the man-environment inter-relationships. It is furthermore, possession of the skills that permit and encourage life-long learning about those man-environment inter-relationships.

Just as the possession of language literacy does not assure that the literate person will read great books, environmental literacy does not assure that the learner will live a higher quality, environmentally sane yet humanly satisfying life. In either case, however, the odds that such things will happen are greatly increased.

The necessity of environmental literacy becomes apparent when it is realized that all of us are involved daily in activities that affect the nature and quality of our environment. In turn, our environment is affecting us on a day to day basis.

You may well ask how we recognize an environmentally literate citizen. Just how do they behave? The following is a description of the ideal environmentally literate person as defined by Roth.[2] It may not be achievable, but it is a goal to strive for.

"An environmentally literate citizen:

1. should be able to recognize environmental problems when they arise. This means he must acquire a basic understanding of the fundamental inter-relationships among men and the bio-geochemical environments. Without such understanding, he cannot perceive potential breakdowns in the system resulting from technologies and population density-dependent factors - breakdowns that reduce the quality of life and which could ultimately affect the ability of the biosphere to sustain life.
2. must think before acting, examining as many facets of an environmental issue as possible before taking his action position.
3. rejects short-term gain when they threaten long-range benefits. He recognizes that environmental problems are easier to prevent or arrest than to reverse.
4. takes action to correct environmental imbalances through such approaches as:
   a. altering his consumer and work practices to make them ecologically sound
   b. expressing his concerns and opinions to appropriate officials
   c. suggesting and/or writing and supporting appropriate legislation
   d. initiating and/or participating in group action and encouraging others to identify and take action on environmental issues
   e. supporting appropriate organizations with time and/or money
5. continues to gather information about environmental issues throughout his life, recognizing that knowledge and skills once acquired cannot be expected to serve a lifetime in our rapidly changing world: yesterday's solutions may not fit today's problems.
6. is humane — that is, recognizing the ecological inter-relationships of all living things, he extends the concepts of humaneness to all life, striving for reduction to a minimum of cruelty and callousness to all living things.
7. must treat public property and the private property of others with the same respect and stewardship he extends to his own most revered property.
8. has a keen sense of stewardship, maintaining and improving the ability of his home area to sustain and enhance the quality of life. He recognizes a need to use the environment fully, but also an obligation to pass it on to the future with as little damage and as much improvement as possible.
9. demonstrates a willingness to curtail some individual privileges and even rights to certain resources for the long-range public good.
10. consciously limits the size of the family he engenders consistent with the limited resources of the biosphere.
11. works to maintain diversity in the total environment - both natural and man-made.
12. is continually examining and re-examining the values of his culture in terms of new knowledge about man and his resources. He then seeks to change values and assumptions that are creating man-environment interactions disruptive to optimum development of human potential and the integrity of the ecosystem."

It is the hope of the Environmental Education Task Force that Massachusetts will firmly embrace the goal of environmental literacy for all its citizens and will move swiftly and firmly towards implementation of a majority of the recommendations of this report.

The recent United Nations Conference of the Human Environment at Stockholm has strongly emphasized the seriousness of our current human and environmental dilemmas. To rebuild a viable planet, we must begin at our own doorstep. Environmental education is truly *"Education That Cannot Wait"*.

[2] *Beyond The Classroom* — Using the Urban Environment as an Instructional Medium by Miriam E. Dickey and Charles E. Roth. Massachusetts Audubon Society 1972.

COMPREHENSIVE SUMMARY OF TASK FORCE RECOMMENDATIONS

In preparing this section of recommendations for action in environmental education, we have drawn not only upon data gathered from the current study, but on earlier planning work by the Massachusetts Advisory Committee on Conservation Education. Establishment of priority levels drew heavily upon the results of the study, but also relied upon viewpoints gleaned from review of current literature on environmental education. The Task Force has attempted to project ahead over the next decade in its recommendations, indicating both what can and ought to be done promptly as well as indicating directions for sustained effort in the years ahead.

Our prime recommendation is that A QUASI-PUBLIC ORGANIZATION BE IMMEDIATELY ESTABLISHED TO CATALYZE AND FOCUS THE PRIVATE AND PUBLIC ENVIRONMENTAL EDUCATION EFFORT IN THE COMMONWEALTH. Without such an organization, the other recommendations of this Task Force run a high risk of non-implementation.

Several alternative structures for such an organization have been explored with the assistance of a law firm. Each alternative was screened according to the following criteria:

a. Is it of sufficient breadth and scope to plan effectively for the environmental education needs of Massachusetts?

b. Is it capable of readily blending funding from public and private sources? (Without such blending, it is unlikely that sufficient financial resources could be assembled to meet the needs. Such blending of funds is difficult at best, and is generally impossible within a strictly governmental framework).

c. Is it tax exempt and capable of attracting private philanthropy, bequests, foundation and governmental funds?

d. Is it capable of organizational flexibility to meet changing problems and opportunities?

The result of our explorations is that a public trust organization best meets our criteria. Such a trust is also easily and relatively quickly implemented. A trust would be able to work with governmental agencies, but also be able to make some headway in spite of occasional governmental austerity programs or bureaucratic roadblocks. A trust, with a small catalytic staff, can be quite free to coordinate and stimulate the cooperative staffing and funding of projects from a host of public and private agencies with a minimum of bureaucratic and academic jealousies. Such cooperation and coordination of a variety of talents is essential to achievement of maximum results on a significant scale from always limited funds and talents.

This Task Force has gone beyond initial study. It has had all the necessary legal papers prepared to implement the recommendation. The following is all that is currently needed:

1. installment of its Trustees
2. initial funding of the basic staff
3. a basic acceptance of this structure as the best answer to environmental education planning and implementation for Massachusetts.

Once functioning, the organization would:

work closely with education, governmental agencies, community action groups, industry, and other groups and individuals to open new and productive channels of communication and cooperation

function as an environmental education clearing house and develop and maintain a communication system able to assemble, review and disseminate ideas in the field

instigate the design and testing of new materials and approaches

determine annual priorities of environmental education needs and catalyze the talent and funds for developing programs to meet the needs

assist school systems or groups of schools in preparing proposals for funding locally developed environmental programs which accomplish overall state and federal objectives for the area. This would apply to other groups as well, and would include follow-up to assist in implementing the programs

explore new technologies for improved instruction.

It is proposed that the trust be named Trust for Environmental Education or TRUST-EE for short. The trust instrument and operating procedures are to be found in Appendix V.

Since any plan, such as initiated by this report, is partially obsolete by the time it reaches the public, there is a compelling need for an ongoing planning procedure and system, representing all key elements of society. A quasi-public body, such as TRUST-EE seems ideal for such an ongoing planning task. The trust approach further permits the stimulation of the implementation of the plans, a point where many planning systems fail. A further benefit of a trust is that when its usefulness is over at some future date, it is more easily dissolved than a public agency.

We strongly recommend that TRUST-EE be made operational by January 1, 1973.

The rest of the recommendations of this report comprise an initial working plan for environmental education in Massachusetts. They constitute a baseline for any environmental education planning system. They should help shorten the time lag between organization of a planning system and effective action.

Effective broad-scale environmental education is long overdue. Each delay contributes to the magnitude of the problems to be overcome. Should our prime recommendation not be implemented, we hope that appropriate agencies in the state will implement such recommendations as fall within their area of responsibility.

The recommendations are divided into several generally separate but inter-related categories — Elementary and

Secondary, Higher Schooling, Public Non-School Education, Governmental Agencies, and General.

Each category begins with a statement of broad objectives.

Following the objectives are statements of general actions needed to achieve the objectives.

Subsumed under the general actions are specific suggestions where appropriate.

First level priorities are indicated by UPPER CASE LETTERS.

ELEMENTARY AND SECONDARY SCHOOLING OBJECTIVES

A. Development of widespread environmentally literate citizenry throughout all levels of our society, that is, citizens who:

a. understand their interdependence with the physical and social environments

b. accept responsibility for their role in the environment

c. are knowledgeable of current environmental issues

d. actively participate in the solution of environmental problems

e. contribute to the prevention of future environmental problems where possible.

B. Establishment, in practice, of environmental education as a fundamental focus of basic education in our schools.

C. Development and implementation of curriculum approaches and materials in environmental understanding throughout the school system, from pre-school to high school, based on a holistic, inquiry-oriented approach, that will develop in children the motivation and competencies to acquire learning skills and personal and group reponsibility toward the social and natural environment.

To achieve these objectives we need:

1. INCREASED AWARENESS AND UNDERSTANDING ON THE PART OF TEACHERS, SCHOOL ADMINISTRATORS, AND SCHOOL COMMITTEE MEMBERS, OF THE FUNDAMENTAL SOCIETAL SIGNIFICANCE OF BASIC ENVIRONMENTAL LITERACY AND THE ROLE SCHOOLS MUST PLAY TO ACHIEVE IT.

Toward this end we recommend:

The establishment of a structure within the Massachusetts Department of Education to regularly and adequately inform the educational leadership of approaches to environmental education and keep them posted on advances in the field. This easily falls within the mandate of the Supervisor of Conservation Education mandated by Chapter 15 of the General Laws, Section 4A as of 1961. This law has never been properly implemented.

Thorough review, updating, and adequate funding of the legislative act that established the position of Supervisor of Conservation Education. The wording of this act was comprehensive, but the finances to implement it have never been forthcoming. (See recommendations for an Environmental Education Act under General Recommendations)

That teachers' organizations in the state be encouraged to set up *active* environmental education committees that will keep their membership aware and informed in this field through their publications, meetings and workshops.

The creation of one or more short films on the nature of environmental education for viewing by school committees and administrators, as well as parent associations and other interested groups.

The introduction of environmental education in the pre-service training of teachers and administrators. (See Higher Schooling section).

2. IMPROVED DISSEMINATION OF EXISTING ENVIRONMENTAL EDUCATION CURRICULUM MATERIALS, DEVELOPMENT OF NEW, BASICALLY INTERDISCIPLINARY MATERIALS TO EXAMINE VALUE SYSTEMS AND IMPROVE THE QUALITY OF ENVIRONMENTAL EDUCATION AT THE LOCAL AND REGIONAL LEVEL.

Toward this end we recommend:

The development of a regional system of environmental education curriculum materials *centers* which teachers could reach with relative ease. To date only two such centers exist, one at Massachusetts Audubon Society in Lincoln; the other in the Westfield Public School System. Both were initiated under Title III ESEA funds. Existing curriculum centers in other fields could be expanded to include environmental education; existing libraries, public or collegiate, could also undertake expansion in this line.

The development of guidelines for such centers with funds legislated to reimburse the cost of operating such facilities as meet the guidelines.

That guidelines for developing localized environmental education curriculum materials be created and published.

That funds be made available to stimulate development of materials according to the guidelines.

That the Massachusetts Department of Education, in cooperation with environmental curriculum materials centers, regularly review the newest curriculum material nationally, and issue periodic annotated bibliographies of the best materials and curriculum approaches.

Widespread establishment of community environmental education task forces composed of educators and community residents to establish local environmental education programs and work for their full implementation. A list of qualified consultants should be prepared to whom such task forces could turn for advice.

3. NEW PATTERNS OF *IN-SERVICE TRAINING OF TEACHERS* THROUGH WHICH THEY CAN GAIN SKILLS AND KNOWLEDGE ABOUT THE APPROACHES AND CONTENTS OF ENVIRONMENTAL EDUCATION IN WAYS EASILY TRANSLATED TO ACTION IN THEIR CLASSROOMS.

TEACHER INVOLVEMENT IN DEVELOPING LOCAL CURRICULUM MATERIALS WOULD PERMIT LEARNING THROUGH PARTICIPATION AND RESULT IN PRODUCTS IMMEDIATELY USEFUL FOR TEACHING.

Toward this end we recommend that:

A task force, composed of experienced in-service trainers, administrators and teacher organizations, be set up to explore existing viable patterns of in-service training, and from such exploration to recommend one or more useful existing or suggested new approaches for in-service training in this field. This task force should submit its findings no later than September of 1973.

The legislature establish a five-year crash program to upgrade environmental education in the schools which would, among other things, subsidize in-service training which meets the recommendations of the previously suggested Task Force. A feasible approach would be to reimburse part of the costs to a teacher who has successfully completed such training. Such a program would be administered through the Massachusetts Department of Education.

Guidelines be developed for required minimum competencies of environmental literacy for all teachers and similar minimum competencies for anyone designated as an environmental education specialist, coordinator, consultant, etc. Such guidelines would establish, de facto, baselines for in-service training and also pre-service training programs.

4. DEVELOPMENT OF IN-SERVICE ORIENTATION TO ENVIRONMENTAL EDUCATION FOR EDUCATIONAL ADMINISTRATORS.

Toward this end we recommend:

Design and implementation of a series of training sessions to give administrators an experiential involvement with environmental education as it affects the administration of schools. The objective of such sessions would be to develop in administrators a sense of the ecology of schools and how this affects learning. From such a sense may arise the desire to assure a major environmental thrust to the programs they administer, from janitorial to instructional levels.

Immediate cooperation with professional conferences of administrators to inject programs of environmental education into these conferences on a consistent basis.

5. Pre-service teacher training that assures that all future teachers will have a basic environmental literacy and at least basic instructional competencies for developing similar literacy in children under their influence.

6. Exploration of new patterns of school organization which will permit a freeing up of much time-binding restrictions and thus more active involvement of students in activities beyond the four walls of the traditional classroom.

7. New transportation system, or systems of funding current transportation to simplify and reduce the local costs of getting groups of students from schools to the many environmental study areas existing around the state.

8. *Environmental technician training* in high school vocational training.

9. Development of environmental study areas or outdoor classrooms on schoolgrounds or very nearby. This would include development of roof-top gardens, playground-corner areas and similar projects in cities, as well as more natural areas in town and country.

10. Cooperation with the members of the New England Camping Association in developing camps for year-round use as environmental study areas on a day or resident use basis, comparable to programs now offered by the Cape Cod National Seashore.

HIGHER SCHOOLING OBJECTIVES

A. Improvement of environmental literacy for all students through multi-disciplinary general education courses

B. Education and training of environmental specialists at all levels, from technician to researcher

C. Provision for expert advice and assistance on gathering data and creating solutions to environmental problems for government and the general public

D. Distribution of sound environmental information to the public and key decision makers

E. Continuing programs of research, disciplinary and trans-disciplinary, into environmental problems

F. Knowledge and ability to teach about and with the environment at all levels of the teaching profession.

To achieve these objectives we need:

11. A MAJOR REVISION OF THE BASIC ACADEMIC REWARD SYSTEM, THAT WILL PERMIT, ENCOURAGE, AND REWARD COOPERATIVE INTER-DISCIPLINARY RESEARCH AND TEACHING, AT LEAST WITHIN THE STATE COLLEGE AND UNIVERSITY LEVEL.

Toward this end we recommend:

That the Secretary of Educational Affairs, the Chancellor of Higher Education and selected people of their choosing, meet regularly to develop and establish a fair and equitable salary and professional advancement system that recognizes the value of and greater difficulty of interdisciplinary research and teaching effort.

12. WELL ORGANIZED AND STIMULATING ENVIRONMENTAL ECOLOGICAL STUDIES COURSES, OR PREFERABLY AN INTERDISCIPLINARY COURSE AVAILABLE TO ALL COLLEGE STUDENTS AS PART OF THEIR BASIC GENERAL EDUCATION.

Toward this end we recommend:

That a Task Force of college educators be assembled to review existing courses of a similar nature across the country and then draft a set of guidelines and recommended curriculum patterns from which individual colleges could select, and adopt or adapt, for implementation.

That such a study be conducted under the auspices of The Chancellor of Higher Education but include, in addition to the state higher education system, all private institutions that would be willing to participate.

Examination for adoption or adaptation of the *Man and Environment* T.V. course developed by the consortium of Junior Colleges under the leadership of Miami-Dade Junior College. This course, or its equivalent, offered in an open college system, could be a viable, less costly long run approach to a general education course.

13. WITHIN THE TRAINING PROGRAMS OF CAREERS WITH HIGH ENVIRONMENTAL DAMAGE POTENTIAL, SUCH AS ENGINEERING AND BUSINESS-INDUSTRIAL MANAGEMENT, COURSES AND SEMINARS ESTABLISHING BASIC ENVIRONMENTAL LITERACY BE IMPLEMENTED WITHOUT DELAY.

Though closely related to the previous recommendation, we give this last recommendation separate identity to emphasize the need to assure environmental literacy among personnel in the high environmental damage risk careers. Every effort must be put forth to develop the highest degree of environmental literacy among people training for these fields.

14. DEVELOPMENT OF PRE-SERVICE AND IN-SERVICE TEACHER EDUCATION PROGRAMS THAT ADEQUATELY PREPARE TEACHERS TO INSTRUCT ABOUT AND WITH THE NATURAL AND SOCIAL ENVIRONMENT. SUCH PROGRAMS MUST EMPHASIZE VALUES DEVELOPMENT AND CLARIFICATION AS WELL AS CONCEPTUAL UNDERSTANDING.

Toward this end we recommend that:

A Task Force be empaneled to develop guidelines for a basic program of environmental education for all potential teachers and school administrators, to include approaches to instruction as well as general content.

Legislation be drafted that will grant only temporary certification to teachers lacking such training after 1978.

Legislation be drafted to provide incentive grants to colleges to develop such pre-service training programs within the next five years.

Given the shortage of people qualified to teach environmental education approaches, state colleges and universities should be encouraged, through the Chancellor of Higher Education, to share instructors on a rotating basis such that a given course can be offered at four institutions within a two-year period.

Each public institution of higher education that trains teachers should be encouraged professionally and financially to develop a basic library collection of environmental education materials.

Each pre-service teacher training program should designate and utilize environmental study areas, both natural and man-managed, in the training of its students.

One public institution be selected to develop an advanced program of environmental education through the Ph.D level in order to develop the coordinators, supervisors, and future trainers in this field.

Formalized relationships be developed with a broad range of organizations, such as museums, aquaria, Audubon Society, conservation commissions and planning boards that can give prospective teachers some practical opportunities for both learning through direct environmental experience and leading others through such experiences.

15. Expansion of independent studies programs in environmental studies along with encouragement of individual and small research group projects related to environmental concerns. Such programs need to be brought into the mainstream of collegiate education rather than floating uncertainly at the fringes.

    We recommend that colleges establish student-faculty groups to establish the necessary procedures to broaden and accredit such activities

    We recommend liaison with government and private groups to establish viable intern programs where students involved in independent and small group study could both learn and contribute valuable data and assistance.

16. Re-direction and expansion of Cooperative Extension Programs within the Land Grant University to provide seminars, courses and workshops on environmental issues and procedures for people working in business, engineering, law, medicine, government and local community agencies.

17. Creation of an Environmental Careers Opportunity Assessment center as a cooperative venture between the Board of Higher Education and the Department of Labor. This center to provide guidance on the need for location and expansion of environmental career training programs at all levels, from technician to researcher, within the higher education system of the Commonwealth.

18. Conferences, seminars, and symposia on the environment for diverse groups of faculty members to facilitate the exchange of ideas and to sensitize these key individuals to environmental concerns and the role of these in their teaching, whatever their specialty.

19. Establishment of an inter-institutional guide to consultants in environmental studies willing to work cooperatively with communities on solving environmental issues.

PUBLIC NON-SCHOOL EDUCATION OBJECTIVES

A. To provide a wide range of opportunities for personal and group involvement in activities to improve the quality of environment, both physical, social and psychological

B. To provide regular sources of reliable information on environmental issues to alert the public, inform them of alternatives and to update them on developments

C. To develop social structures for developing environmentally literate life styles (life styles that are humanly successful and ecologically sound)

D. To develop skills for individual and group action in improving the quality of life and environment.

To achieve these objectives we need:

20. A COUNCIL OF YOUTH ORGANIZATIONS TO EXPLORE ENVIRONMENTAL PROGRAM IDEAS AND ACTIVITIES THAT WILL APPEAL TO YOUNG PEOPLE.

Toward this end we recommend that:

A conference of the major youth organizations be called to establish such a council and work towards a proposal for initial funds for a coordinator to serve the council and work toward implementation of its ideas. The concept proven, the groups should be able to provide continued support for the position by annual assessments based upon membership.

21. TRAINING PROGRAMS FOR INSTRUCTORS IN SUCH RECREATIONAL ACTIVITIES AS BOATING, HUNTING AND FISHING, CAMPING, SNOWMOBILING, ETC. ON THE ENVIRONMENTAL IMPACT OF THEIR ACTIVITY AND DEVELOPMENT OF APPROPRIATE "ENVIRONMENTAL MANNERS".

Toward this end we recommend that:

There be further legislation mandating licensing for the operation of all recreational vehicles, such licensing to demand sucessful completion of a short course on the safety procedures and environmental impact and requisite necessary "environmental manners".

The appropriate State Agencies develop guidelines for such courses and a program for training and licensing people to give such courses, and a process for periodic review of the training programs.

Courses for the public be provided on a free enterprise basis; e.g., as with present driver training programs.

22. NEW VOLUNTEER ENVIRONMENTAL SERVICE PROGRAMS INVOLVING HUMAN AND NATURAL RESOURCES. (FOR EDUCATION THROUGH PERSONAL INVOLVEMENT AT ALL AGES.)

Toward this end we recommend that:

TRUST-EE work with existing groups such as Neighborhood Youth Corps, The Teacher Corp, Economic Opportunity Councils, Senior Citizen organizations, and the like, to develop a listing of realistic environmental projects that could be undertaken within the framework of their existing programs.

Programs of internship be developed with public and private environmental organizations to utilize the talents and training of college age people seeking practical experience. This requires deliberate planning for, and at least minimal funding for supervision. Projects accomplished should easily offset the basic costs.

Training programs for Environmental Aides be organized to assist teachers and youth leaders, utilizing housewives and retired people.

Each community establish environmental quality baselines and develop a regular periodic updating program to determine in what areas environmental quality is improving or declining.

Development of training programs for individuals who would like to work with and on Town Conservation Commissions in the regular collection of town environmental data upon which policy and action can be made.

23. INCREASED ENVIRONMENTAL INTERPRETATION AT MUSEUMS, AQUARIA, ZOOS, NATURE CENTERS, INDUSTRIES, GOVERNMENT PARKS, PUBLIC LANDS AND PRIVATE LANDS OPEN TO THE PUBLIC.

Toward this end we recommend that:

Legislation be created to mandate and finance interpretation through personnel and media on all state owned public lands. Such interpretation to relate to the public the unique features and quality of the site that make it land to be held in public trust. Such interpretation could be provided either directly by the responsible agency or by contracting to organizations with special expertise in the interpretation field.

A Governors' Award program be established, perhaps with the cooperation of TRUST-EE, to recognize annually outstanding achievement in environmental interpretation to the public by both government agencies and private groups.

TRUST-EE work with representatives of industry to develop more industrial interpretive programs that individuals and groups could visit to learn about the nature of particular industrial process, from raw materials to final waste disposal, and the impact of products on the environmental system.

TRUST-EE undertake a series of conferences with personnel of museums, zoos and nature centers in the state for developing the staffing, financing and logistics of developing and sharing more environmental displays and programs in their institutions, in line with the recommendations of The Association of American Museum's Task Force on the Environment.

24. IMPROVED MEANS OF GETTING RELIABLE INFORMATION ON ENVIRONMENTAL ISSUES AND PRACTICES TO THE PUBLIC AT LARGE.

Toward this end we recommend:

Increased environmental reporting on a regular basis on radio and television news shows and special reports. We particularly encourage the giving of under-lying ecological background principles that relate to the news item.

The expansion of the existing Cooperative Extension Program framework into the environmental field, particularly in the areas of consumer purchasing, household management and recreation.

Establishment of a centralized environmental data bank with a computer retrieval system and a program to supply answers to people who phone in questions and visit in person. Such a center could also prepare data briefings for media personnel on current environmental controversies, so they could provide more objective and informed reporting. Such a centralized data bank could be a joint venture between major universities and state government. In addition to providing data to the public, it would naturally provide data for government decision-making on environmental issues. Although initially expensive, it could have untold benefits in processing information on environmental impact of many proposals.

Such a center might be developed at one of the former county youth schools, such as the Lyman School in Westboro. The existing buildings would provide a facility for both the computer and retrieval system and the satellite system for basic users of the data — i.e., planners, educators and media personnel.

Development of a cooperative relationship between Town Conservation Commissions and Town or School Libraries to create local data centers of information on the environment of a town, including reports, maps, historical information, etc. Development of guidelines for such data centers could be worked out jointly by the Association of Conservation Commissions and the Massachusetts Library Association.

That communities, particularly in cities, should be encouraged to develop volunteer operated drop-in centers for dissemination of information on environmental affairs such as: local centers for recycling materials, information on ecologically destructive products and packaging, local environmental issues and other information of direct use to informed citizens. All volunteers would be trained in the art of where to get sound information on problems and how to admit ignorance of issues gracefully. Guidelines for such drop-in, phone-in centers could be developed by an ad hoc task force composed of private organizations with experience in this activity, librarians, and government personnel. Funds for the basic overhead for such centers, i.e., phone, desk, might be provided by local Conservation Commissions or by annual fund raising.

25. MORE CONFERENCES, SEMINARS, AND SYMPOSIA ON ENVIRONMENTAL AFFAIRS FOR ALL LEVELS OF MANAGEMENT, PRIVATE AND PUBLIC.

Toward this end we recommend:

That grants be sought by higher education institutions and private environmental education organizations to do the necessary front end design work for management training programs on the environment that will attract managers and truly be useful to them. Operation of such programs should be possible on a regular fee basis. Pressure to attend such programs can be generated through stockholders and public pressure as well as a sense of corporate and governmental responsibility.

26. Increased course offerings on environmental affairs from community colleges, extension programs and private adult education organizations. Along with this goes a need for development of more sophisticated curriculum materials, approaches and teaching aids for adult level courses.

27. Education for ecologically sound, yet rewarding, use of increased leisure time. This could be done through T.V. specials featuring lesser known recreational pursuits. More stress in newspaper leisure time sections of such activities. T.V. spot ads for environmental volunteer activities.

28. Environmental training sessions and conferences for journalists, television producers, radio programs and other media specialists to help improve the depth and quality of their public products.

29. A program to assure truthful advertising of products designed to improve the environment so that the potential user knows exactly what the product does and does not do. Strict penalties for manfacturers that make false claims about a product's impact on the environment.

30. Establishment of community environmental education task forces composed of teachers and community residents to establish a community environmental education program for all ages. Develop a list of consultants who could provide technical assistance to such task forces.

31. Preparation and distribution of regularly annotated bibliographies on the environment to encourage school and community libraries to increase their collections in this field.

32. Development of a program of support and encouragement of art forms such as music, art, drama and architecture that create an atmosphere of environmental sanity.

33. A citizens group, like Action for Children's Television, be encouraged to bring constructive pressure on the television industry to increase their efforts to positive ends and to reduce or eliminate those programming and advertising features that covertly encourage environmental degradation.

34. An extensive system of training leaders of youth groups, both volunteer and professional, be established to assure their environmental literacy and basic skills in conducting activities dealing with environment within the framework of their organization.

35. A series of guidelines and advisory services in land management for those organizations that own and operate lands for youth programs be prepared. Such lands provide both opportunity for creative action and positive or negative learning experiences about land management responsibility.

GOVERNMENTAL AGENCIES AND ENVIRONMENTAL EDUCATION OBJECTIVES

A. To develop full awareness among key employees of the environmental impact potential of governmental programs

B. Development of inter-agency awareness of environmental policies and regulations in order to avoid conflicts and duplication

C. Development of a systematic dissemination system for getting agency developed policy and environmental information to other agencies and the general public

D. Greater participation in environmental education curriculum development in conjunction with teachers, collegiate educators and private consultants.

To obtain these objectives we need:

36. DEVELOPMENT AND IMPLEMENTATION AT THE CABINET LEVEL A MECHANISM FOR EXCHANGING AND DISTRIBUTING ENVIRONMENTAL POLICIES AND REGULATIONS TO THE KEY OFFICES INVOLVED ON A REGULAR ONGOING BASIS.

37. DEVELOPMENT AND IMPLEMENTATION, BY DEPARTMENTS WITH ENVIRONMENTAL IMPACTS, OF A REGULAR PROGRAM OF EMPLOYEE INSERVICE TRAINING TO UPDATE UNDERSTANDING OF ENVIRONMENTAL FUNDAMENTALS AND CURRENT ISSUES.

This will require:

Increased funding to hire or contract the trainers.

A work plan that permits release time for the seminars, workshops, etc.

Establishment of a multi-agency training center where such programs could be conducted at minimum outlay of funds. Such a center could also be used for other kinds of inservice training programs for government employees.

38. CREATION OF A STATEWIDE ENVIRONMENTAL DATA COLLECTION AND DISSEMINATION CENTER.

To achieve this we recommend:

A central facility to house a computer center and offices of representatives of a variety of agencies. Such a site could well be one of the training schools being abandoned, such as the Lyman School in Westboro. (See also #24)

A study center where government agencies and college and private researchers could use and review data.

An environmental information dissemination center that develops news releases, newsletter articles, case history packets for curriculum use, and other devices for getting information to the public and educational institutions.

An office to provide information to agencies of town and city government seeking information on local environmental issues and impact of proposed projects.

A legislators' environmental information aid office. To this office, legislators could direct inquiries for technical data and information of environmental issues.

A consortium of colleges, universities, and agencies that would help collect and sort data, program the data, and process the information on a wide range of environmental topics, ranging from health to land use.

A training and interpretation program to help people use the center and understand the printouts they receive. In time, such a data center could be connected to local terminals throughout the state for more rapid access to the system.

39. EXPLORE CREATION OF LETTERS OF COOPERATIVE AGREEMENT WITH TRUST-EE FOR CATALYSING ACTION IN ENVIRONMENTAL EDUCATION IN LINE WITH THE RECOMMENDATIONS OF THIS REPORT.

40. STRENGTHENING AND EXPANSION OF ENVIRONMENTAL EDUCATION BY THE TWO KEY SECRETARIES — EDUCATIONAL AFFAIRS AND ENVIRONMENTAL AFFAIRS.

Toward this end we recommend:

Development and operation of a structure within the Department of Education to:

a. Keep school people in the Commonwealth up to date on programs and practices of environmental education around the state, including both curriculum and administration patterns

b. Coordinate and insure an environmental component in the other relevant programs of the Department of Education

c. Coordinate and develop criteria for spending portions of federal and staff funds in the area of environmental education, this to be done cooperatively with TRUST-EE where possible to maximize the available funds

d. Provide technical assistance to schools desiring help in developing environmental education programs

e. Work with other government agencies wanting to develop environmental education materials

f. Review community developed environmental education plans and give guidance and assistance toward their development and implementation

g. Advise the Board of Higher Education on needs for training of teachers to provide environmental education

h. Conduct and assist with in-service training programs of environmental education

i. Help schools develop environmental study areas nearby or on the school site and work with the School Building Assistance Bureau to develop funding for schools who will develop such areas

j. Help develop a pattern of regional environmental education curriculum materials centers

k. Develop departmental legislation recommendations to help strengthen environmental education in the Commonwealth.

Establishment of an Environmental Education Committee under the Chancellor of Higher Education to make a regular assessment of environmental manpower needs and assessment of the higher education systems capacity to meet these needs with regular reports of recommendations for program improvements. This committee would also regularly assess programs of teacher training and their efficacy in developing environmentally literate teachers with skills to develop such literacy in others. Such a committee would also be involved in aspects of other recommendations under Higher Schooling. Some members of such a committee would also serve on the Advisory Committee of TRUST-EE.

41. Establishment of a structure within the areas of responsibility of the Secretary of Environmental Affairs that would have responsibility for coordinating and implementing environmental education and information for all the resources oriented agencies.

Such a structure would be basically responsible for:

arranging for interpretation on public lands

developing and operating the environmental data bank

disseminating sound environmental information to the public through mass media

providing technical assistance on developing environmental seminars and inservice training for governmental personnel

developing and maintaining an environmental management training center for governmental personnel and others.

42. TRUST-EE and State and Federal agencies should develop, disseminate and regularly update a guidebook of all sources of federal and state funds applicable to the area of environment and environmental education. Such a listing could also include foundations with a known background of supporting environmental projects.

43. Development of a pollution monitoring grid across the Commonwealth as a cooperative effort between high schools, colleges and resource agencies. The grid, established by agencies, would establish monitoring stations. Participating instructors would be certified in techniques and would train students for these techniques. Data which deviated from legal norms for pollution would be immediately transmitted to the responsible agency. Agency personnel could then check the discrepant site themselves to verify the illegal pollution and take necessary action. Such a grid of volunteer students would increase the efficiency of environmental monitoring and reduction of pollution.

44. Development of greater use of college students and faculty to explore and report on particular problems and alternate solutions faced by agencies with a resource responsibility.

GENERAL RECOMMENDATIONS FOR ENVIRONMENTAL EDUCATION

45. DEVELOPMENT OF AN ENVIRONMENTAL EDUCATION ACT FOR THE COMMONWEALTH OF MASSACHUSETTS.

Such an Act should include:

Declaration of the goal of universal environmental literacy

Statement of the Commonwealth's obligation to assure full opportunity for achieving such literacy and legal mandate to various departments to commit part of their time and resources to environmental education at various levels.

Establishment of state funding commitments in various areas of environmental education such as:

a. environmental data and information dissemination center
b. regular inservice training of key personnel in agencies with environmental responsibilities
c. support of basic administrative costs of a coordinating catalytic agency or organization such as TRUST-EE
d. a structure in Department of Education to conduct activities as listed in the Governmental Agencies section
e. program of rapid updating of inservice teachers in the area of environmental education
f. development of environmental manpower training programs
g. minimum percent of federal funds to education within the State that must be committeed to environmental education.

46. DEVELOPMENT OF A STATEWIDE CATALOG OF PUBLIC AND PRIVATE ORGANIZATION LANDS FOR USE AS ENVIRONMENTAL STUDY AREAS, TO BE FOLLOWED BY A REPORT RECOMMENDING SITES TO RECEIVE POSSIBLE FUNDING FOR REGIONAL USE ON A LARGER SCALE.

Such a study might well be undertaken through the existing network of Conservation Districts and the printing funded by them. The final reports would be sold at cost, and the publicity on the availability of the catalog would be done cooperatively through many groups. An alternate sponsor of such a catalog might be the Association of Conservation Commissions.

47. Creation of legislation mandating observance of one day as Earth Day within Earth Week each year. On this day, regular school activities to be suspended from grades 4 up for environmental improvement activities in school and community. Legislation also to urge week long focus of the environment in all appropriate curriculum areas during Earth Week.

48. A Council of Industries for Environmental Education should be established to provide a forum for discussion of industry's role in this field and center of exchange of ideas and technical assistance in developing environmental education materials and programs, both within industry and to the public. Industry, as well as government, needs in-service seminars and workshops on environmental impact and technology; such a council could help develop such training programs and give a seal of approval, or at least evaluation, to such programs developed by groups outside of industry.

49. A similar Council of Labor Organizations for Environmental Education to develop programs and materials to keep workers apprised of the basics of environmental health and other environmental impact issues that affect the average worker.

DESCRIPTION OF THE TASK FORCE STUDY

PURPOSE

This study had three objectives: 1) to assess all aspects of Environmental Education programs currently in progress at all educationals levels within the Commonwealth, as well as those needs as perceived by educators, in both formal and non-formal educational settings. Also asked were state and federal agency personnel and individuals involved in continuing education, conservation commissions and land trusts and the media; 2) to determine the needs for improving the status and level of environmental education within the Commonwealth and rank them in terms of priorities: 3) to propose a state planning system which would act as a flexible conduit for federal, state and private funds to assist in the implementation of the established priority of needs.

For planning purposes, the study was envisaged as a two year program, with the first year's activities based upon the three objectives stated above, and the second year based upon further investigation and clarification of the needs and priorities and the actual setting up and funding of TRUST-EE.

PROCEDURES

FORMATION OF TASK FORCE COMMITTEES

At the first meeting of the Task Force in September of 1971, the members selected a plan for categorizing elements of environmental education and the work of the Task Force. Working committees were then set up according to those categories and members expressed their committee preferences. In actually setting up the committees, Task Force members were assigned according to their first choice wherever possible. (For committee assignments see Appendix I).

The following committees were agreed upon:

1. *Elementary and Secondary Education* — including all public, private, and parochial schools from kindergarten through high school (In this report the word education in the committees name has been changed to schooling).
2. *Higher Education* — including all public and private colleges and universities (In this report the committee name has been changed to Higher Schooling).
3. *Continuing Education* — including museums, zoos, aquariums, sportsmen's clubs, conservation commissions, youth groups, land trust organizations, the news media, business and industry. (In this report the committee name was changed to Public Non-school Education).
4. *Federal and State Agencies* — including all that have a major impact on environmental affairs.
5. *Organizational Planning Committee* — established to work on the development of the state planning system— i.e., the Trust for Environmental Education and its structure. This committee also functioned as a steering committee.

SURVEY SAMPLE SELECTION

For the survey of environmental education in the Commonwealth and a statement of the needs, the following populations were used:

1. All public, private and parochial kindergartens, elementary and secondary schools in the Commonwealth as recorded by the Research and Development Office of the Department of Education in the listings of January, 1972.
2. All public institutions of higher education and all private colleges and institutions as listed by the Office of the Board of Higher Education for the Commonwealth and the Massachusetts Section of the United States Directory of Institutions of Higher Education listings as of January, 1972.
3. a. All Massachusetts aquaria and zoos and a sample of museums based on size compiled by Task Force volunteers from a number of source listings as of March, 1972
   b. All sportsmen's clubs as listed with the Massachusetts Department of Fish and Game as of March, 1972.
   c. Newspapers, TV Stations and Radio Stations as listed with the Massachusetts Audubon Society and WGBH-TV.
   d. All conservation commissions as listed with the Massachusetts Association of Conservation Commissions as of March, 1972.
   e. A sample of land trust and watershed organizations compiled by the Massachusetts Audubon Society and updated through March of 1972.
4. All federal and state agencies within the Commonwealth as compiled by the Governor's Youth Task Force on the Environment as of December, 1971.

METHODS OF DATA COLLECTION

The Task Force debated the question of whether or not to computerize the questionnaire to simplify data retrieval. Upon advice of a knowledgeable Task Force member, it was decided not to attempt computerization because of the relatively small sizes of the various populations to be surveyed.

Each committee met monthly to plan with the Executive Secretary. Each committee was responsible for developing its own survey instrument, establishing its suspense dates, and determining the methods of follow up and analysis of results.

The bulk of the work in producing the questionnaires, collating them, stuffing and stamping, as well as the follow up activities was done by the Task Force staff and a set of loyal volunteers who noted the publicity of the Task Force and expressed a desire to help. In addition to office volunteers, the follow-up work was handled through the development of a network of volunteers from all over the State developed through word of mouth, personal contacts through Task Force members, newspaper publicity and requests for help published in the Newsletters distributed monthly by the Massachusetts Audubon Society and the Massachusetts Association of Conservation Commissions.

Office volunteers compiled lists of schools and colleges with close proximity of other volunteers throughout the state and these lists were sent out to volunteers with instructions as to how to visit or telephone college personnel and principals who had received the higher education and elementary and secondary school questionnaires. The federal and state agency follow-up was handled by the Governor's Youth Task Force volunteers who also conducted their work primarily by telephone. Because of the lateness in getting out the continuing education questionnaires, no effort was made to conduct a follow-up, which accounts for the relatively low number of returns.

A second questionnaire was mailed out only to those who requested them. No complete second mailing was made because of a time factor and the lack of enough volunteers to take care of the mechanics of getting such a mailing out.

Although response dates were established on all questionnaires in order to receive the returns as soon as possible, the cutoff dates were not adhered to in tabulating the data. All information was used up until the latest date possible to establish a larger percentage of accuracy.

NATURE OF SAMPLE

Table I shows the nature of the sample used in surveying the current status of environmental education in the Commonwealth. The total returned is greater than the total tabulated because some questionnaires were returned after the cutoff date established by each committee.

TABLE I — NATURE OF SAMPLE

School/Organization	Total Mailed	Total Ret'd	% Ret'd	Total[a] Tabulated	% Tab'd
Elementary and Secondary Schools	3127[b]	1069	33.7%	1057	33.3%
Higher Education	120	75	62.5%	75	62.5%
Federal Agencies	56	31[c]	55.4%	31	55.4%
State Agencies	200	104[d]	49.0%	104	49.0%
Newspapers	301	18	6%	18	6%[d]
AM/FM Radio Stations	68	19	28.0%	15	22.1%
TV Stations	12	5	41.7%	5	41.7%
Museums, Zoos, etc.	306	48	15.7%	38	12.1%[e]
Sportsmen's Clubs	367	12	3%	11	3%
Conservation Commissions	300	72	24.0%	52	17.3%
Land Trusts	50	8	16.0%	8	16.0%

a. As of cut-off dates established by each committee

b. Includes all public, private and parochial schools

c. An adjusted number. 22 questionnaires were returned representing 31 agencies. (See Report of Committee on State & Federal agencies)

d. An adjusted number. 74 questionnaires were returned representing 104 agencies. (See Report of Committee on State & Federal agencies)

e. Low percentages on newspapers, museums, sportsmen's clubs, conservation commissions and land trusts can be attributed to a lack of follow-up before a cut-off date had to be established and a final tabulation made.

No real effort was made to obtain a geographical spread on the returns of any of the questionnaires. At the elementary and secondary level, 250 of the 350 communities in the Commonwealth, or 71.2% did return a questionnaire, giving the Task Force at least some idea of what is going on in school systems throughout the Commonwealth. The returns from higher educational institutions, conservation commissions, land trusts, sportsmen's clubs and the media were also geographically well distributed.

SUMMARY AND CONCLUSIONS

The Task Force divided into five committees, each of which concentrated on one of the four phases of the survey, or on the state planning instrument. Questionnaires were developed and put out with a follow-up procedure handled by a broad based group of volunteers.

The Task Force was encouraged with the response, and concluded that:

1. There is a great deal being done in environmental education in the Commonwealth, although it is still scattered and primarily due to individual efforts, rather than an overall program.
2. In many cases, it is safe to assume that those schools and institutions which did not answer the questionnaire were those without any formal or non-formal environmental education programs.
3. Further evaluation of the continuing education organizations needs to be carried out in the near future to obtain a more accurate picture of environmental education being carried out in that area.

REPORT OF THE COMMITTEE ON ELEMENTARY AND SECONDARY PUBLIC, PRIVATE AND PAROCHIAL SCHOOLS

To determine basically current organization and activity in the field of elementary and secondary education, a questionnaire and cover letter was sent to 3,172 Massachusetts schools — virtually all schools that fall within the category. Replies were received from 1,073, a total response of 33.8%. Of those replies received, 86.4% were from public schools and 13.4% came from private and parochial schools. Replies were received from 70% of the cities and towns of the state.

A description of the questionnaire, an analysis of the returns and our evaluation of the answers to the questionnaire follows. Finally, our recommendations for an initial course of action to stimulate the proper growth of a program for the teaching of environmental studies within the Elementary, Private and Parochial school system is stated.

1. DESCRIPTION OF THE QUESTIONNAIRE (See Appendix III for a copy of the actual document)

1. Demographic Data
2. Standing of Environmental Education Within School
3. Time and Population Factors
4. Texts
5. Supplementary Materials and Services
6. Field Work and Outdoor Education
7. Needs

Demographic Data pertains to the school's grade levels, enrollment and position of the person answering the questionnaire.

Status of Environmental Education Within School relates principally to questions regarding the type of program which exists, the status of the program in the school curricula and background of teachers.

Time and Population Factors concerns a series of questions which tell us how much time is alloted to the program and how many students and teachers are involved.

Texts — The titles of a series of texts in the areas of Health Education, Science and Social Studies, covering grades K-12 were listed. Those receiving the questionnaire were asked to check what texts they were using.

Supplementary Materials and Services — A list of kits, games and other aids were listed and the person answering was asked to check off what he was using. They were also asked if they used teacher aides or volunteers from their community.

Field Work and Outdoor Education — The questions in this category refer to amount of time spent in field work, type of areas used, and cost of field work to both school and pupil.

Needs — Sixteen categories pertaining to immediate needs in the area of environmental education were listed. We asked that they be ranked in order of greatest need.

2. ANALYSIS OF RETURNS

Status of Environmental Education Within School

Approximately 21% of those answering stated that environmental education has been integrated into the school curricula; 26% expect it to be integrated at a later date.

Many schools include environmental studies as part of another subject being taught. Approximately 60% of those questioned teach the subject in more than one subject area. The predominant subject areas in which it is being taught are: General Science — 53%, Social Studies — 46%, Biology and Earth Science — 28%. Only 6 schools, of those queried, teach environmental studies as a specific course.

Environmental education, under whatever conditions it is being handled, is being taught in 47% of the cases by teachers of Biology and General Science, 15% by Social Studies teachers and 14% by teachers of Earth Sciences. An additional 22% were teaching Environmental Education under circumstances which require individual explanation.

Sixty-seven percent (67%) of those answering the question regarding extra-curricula activity in this area of study, do not forsee such activity developing in the future.

3. TIME AND POPULATION FACTORS

Interestingly enough, out of 964 schools replying, 30% of the schools have taught environmental education for 1-2 years, 25% for 2-3 years, 22% for over 5 years. Only 15% have taught it for less than 1 year and 8% between 4-5 years.

On the basis of a school year, it is evident that most schools devote time to this subject in two ways: 47% for less than one-quarter of the year and 28% for the full year. Half year and quarter year periods are utilized much less. However, the number of hours (classroom time) per week given to the subject of environmental studies is under two hours in over 56% of 537 answers, with the rest pretty well spread within a 2 to 5 hour period. Also of interest is the fact that the course is taught in 35% of the cases in the fall, and in almost 50% of the cases during the spring term, but only 10% offer it in the winter. Approximately 5% offer a summer program in Environmental Education.

The breakdown denoting the number of pupils to teachers bears mentioning. There are not enough teachers to adequately handle the number of students involved. For example, 337 schools out of 816 answering this question are using less than six teachers to teach the subject. Out of 781 answering, over 55% of the schools teach the program to between 100 and 1000 pupils.

4. TEXTS

Four text titles were given under the headings of science

and social science. Each person answering the questionnaire was asked to check which title (s) they used, and if none were used, they were to state what they were using. This question was divided into 2 categories: (1) grades K-6, (2) grades 7-12. Out of 346 answers in the science section of grades K-6, 43% said they used the "Concepts in Science" text. Beyond this, the texts were pretty well divided among the other titles suggested, but, in all categories, roughly 46% of those answering used a text of their own choice.

5. SUPPLEMENTARY MATERIALS AND SERVICES

The types of supplementary materials used in the forms of kits and games were almost equally divided among the various mentioned. When asked if any teacher volunteers or paid aides from the local community were used, only 142 said "yes", while 487 said "no".

6. FIELD WORK AND OUTDOOR EDUCATION

Significantly enough, 36% of those answering this question spend no time in the field, and 55% spend 10-25% of their time in field work. Most of it is spent around the school grounds or in local town forests and parks. Interestingly enough, out of 688 answering, 57% have outdoor classroom facilities right around their school, while approximately 43% do not. We would not have guessed this to be the case, considering the average location of most schools, but we do not know what some of those answering consider sufficient "outdoor facilities". Nevertheless, 58% consider the facilities around their school to be adequate. Thirty-four percent (34%) say they have 1-5 acres for this purpose, while 25% say they have between 10-25 acres — amazing!

In respect to overnight camping programs, only 101 out of 732 responding (13%) conduct such programs and in most cases less than 100 children from any one school are involved. However, out of 79 answers to the question on the cost to the school, over 50 said it costs the school nothing; the children paying their own way. In almost 60% of the cases, it costs the students under $10.00 for up to four nights. In most cases, schools take trips of either 2 or 4 nights duration, and the peak of activity is reached in the sixth grade.

SUMMARY AND RECOMMENDATIONS

Because of the rapid destruction of much of our environment and life support systems, widespread concern for environmental safety and awareness is a recent development. Consequently, society is not presently prepared to cope with many of the urgent problems which this situation demands. As a result of our survey, and because of our immediate concern for environmental literacy, we feel that prompt attention should be paid to the needs described in our recommendations, ranked according to priority:

1. ENVIRONMENT AND NUTRITION

Because of the relationship which exists between environment and nutrition and because the ability of a child to learn is directly related to the quality of nutrition, a mechanism, plus adequate funds, must be provided to insure the continuing education of personnel who prepare and administer food service in public, private and parochial school systems.

2. MEETING THE NEED FOR TRAINED TEACHERS

Because of the shortage of teachers trained in environmental education, a mechanism must be developed within higher education for the training of a teacher cadre disciplined in environmental learning.

3. RETRAINING PERSONNEL IN ENVIRONMENTAL UNDERSTANDING

That provisions be developed for training of superintendents, administrators, supervisors, and teachers in public, private and parochial schools in environmental literacy and awareness by means of seminars and institutes.

4. EVALUATION OF TEXTS AND TEACHING AIDS FOR ENVIRONMENTAL EDUCATION

That the State Department of Education make a careful review and evaluation of current environmental textbooks and curriculum literature, and have available a recommended list of such texts for use in public, private, and parochial school systems.

5. CURRICULUM

That provision be made for the acquisition and development of new and current curricula in environmental learning for use in the urban, suburban, and rural school systems.

6. SUPPLEMENTARY ENVIRONMENTAL RESOURCES AND AGENCIES

That public, private, and parochial schools draw upon the community environmental talent to assist them in bringing about a total environmental awareness. For example, qualified volunteer teachers or professionals with expertise in environmental problems.

RESPECTFULLY SUBMITTED:

Chandler Gifford } Co-Chairmen
James Howard }
Kathleen Boles
Elizabeth Cirino

REPORT OF THE COMMITTEE ON HIGHER SCHOOLING

HIGHLIGHTS OF FINDINGS

One hundred twenty (120) questionnaires were mailed out. There were seventy-five (75) responses, a sixty-three percent (63%) return. Fifty-two (52) of the seventy-five (75) institutions responding have course offering or programs in environmental education.

The most common need cited is for increased funding. Thirty (30) of the fifty-two (52) institutions with environmental offerings ranked monetary needs as their number one priority. We did not ask exactly how such funds might be used. By inference, most demand exists for adequate support personnel and supply monies, a conclusion borne out by the findings that the second priority is for teaching materials and laboratory equipment; e.g., curriculum guides and laboratory units for upgrading environmental courses.

Most of the schools had either one-man or poorly staffed Environmental Departments. In many cases, environmental courses were offered from a traditional Department such as Biology, Chemistry, Engineering, Social Science, Physics, and combinations of the above, and were either low or totally lacking in reward structure and budget access.

Further high priority needs, in order, are: audio-visual offerings, television offerings, a central servicing agency for environmental education, technician training courses, in-service courses, more elective environmental course offerings, greater flexibility in scheduling, outdoor areas for outdoor classroom and laboratories.

RECOMMENDATIONS

Enjoyment of life by every human being requires restoration and maintenance of a quality environment. We consider our top priority to be that of funding environmental education, to provide a marked increase in programs, courses and widespread dissemination of literature and other media relative to present and potential environmental crises.

Beyond actual funding, the most obvious need is a central body to recommend and allocate funds. We recommend that this body be in the form of a Trust, or be a continuation or modification of the present Governor's Task Force on Environmental Education. This Trust or Task Force should be so positioned as to be able to work with other established Governor's Task Forces, and be a quasi-governmental autonomous coordinating body, both drawing support from and contributing to related activities of both Secretaryships of Environmental Affairs and Education.

In order to achieve a sound ecologically based environmental concern by everyone for his or her surroundings, it is our recommendation that all teacher-training programs contain such course opportunities for new teacher-graduates at all levels of higher learning. Since careers in environmental affairs will play a major part in sustaining citizen interests in such activities, an Information-Education unit should be established, preferably by the Trust recommended above, to keep institutions, citizens and governmental agencies fully apprised of potential positions, legislative requirements (such as those imposed by NEPA and its possible state equivalent) and educational opportunities throughout the Commonwealth.

As an example of the kind of activity which this recommended Trust or Task Force could immediately undertake, we call attention to the course "Man and Environment". Development of this modular course received financial support from the United States Office of Education; the course is described in the publication *"Environmental Education in the Community College"*, American Association of Junior Colleges, Washington, D.C., made possible by contributions from private foundations. This course has been implemented at Berkshire Community College, and will be greatly expanded in a national effort during 1973.

It could be widely implemented as a Freshman college course in Massachusetts. There are modular materials, including a text and media, to facilitate immediate usage. We recommend that appropriate measures be taken to make this course available in more colleges by the immediate initiation of workshops.

The present freeze on all environmentally-oriented state positions is a serious deterrent to our recommendations aimed at upgrading environmental quality. Although a severe austerity program has merit, it will inevitably result in further environmental degradation at this time. We strongly recommend a concerned effort to free up all possible state appointments.

Massachusetts has been severely criticized by many who represent Federal environmental control agencies for not doing its part in coping with environmental crises. To qualify for continued governmental funding, we recommend that the state demonstrate a willingness to share the cost of protecting its environment, which, after all, is the life-support system of its people.

Further recommendations by the Committee on Higher Schooling include:

1. Expansion of independent studies program in environmental education and encouragement of individual and small group projects related to environmental quality.
2. Environmental technician training programs, particularly in the two year community colleges, if the need for such programs is warranted.
3. Conferences, seminars and symposiums on the environment for diverse groups of faculty members to facilitate the exchange of ideas and to sensitize these very individuals to environmental concerns.
4. Establishment of environmental information centers at institutions of higher schooling where students, faculty and community members can turn to locate data on individuals who can advise them on environmental issues of concern.
5. Refresher courses in environmental education offered by

institutions of higher education for graduates working in fields of business, engineering, law, medicine, government, etc.

RESPECTFULLY SUBMITTED,

George Hamilton, Chairman
Norton Nickerson, Co-chairman
John Nolan
Dayton Carritt

REPORT OF THE COMMITTEE ON CONTINUING EDUCATION

Various sources of Continuing Education were contacted by questionnaires. One form was sent to Aquariums, Zoos, Museums and Sportsmen's Clubs; a second form was sent to Conservation Commissions and land trust organizations; a third to the News Media. (Radio, TV and Newspapers). Due to limitations of time and personnel, a survey of the industrial complex was not attempted. There were 147 replies, up to and including April 26th, from the 1,549 questionnaires mailed out.

1. AQUARIUMS, ZOOS, MUSEUMS, SPORTSMEN'S CLUBS

Forty replies were returned from the 793 questionnaires sent which represents 5% of the population sampled. A 4 to 1 ratio of those returned indicated that they have program offerings to the public with approximately one-half providing speakers, films and static exhibits. More than one-third provided classes, guided and self-guided nature walks and live exhibits. The static exhibits are primarily based on water and air pollution.

One-half maintain bulletin boards and a 3 to 1 ratio maintain libraries open to the public.

One-third provided educational programs for their employees, hiring personnel from within and outside of their own agency. These programs range in frequency from 2 daily to an occasional film showing, and from under 4 to over 12 hours per month.

The needs as expressed, indicated that qualified personnel to organize and operate programs have first priority, followed by need for audio-visual materials and a central servicing agency.

A majority recognized environmental education as a goal, but lack personnel to activate programs.

CONCLUSIONS AND RECOMMENDATIONS

An awareness of Environmental Education is evident, and initial steps are being taken to provide programs within the limits of funds and personnel.

It is recommended that a central servicing agency be formed to provide qualified personnel to assist organizations requesting such help.

2. CONSERVATION COMMISSIONS AND LAND TRUST ORGANIZATIONS

Sixty two replies were returned from the 375 questionnaires sent, which represents 16.5% of the population sampled. The chief methods of informing the public were by news releases, citizen's hearings and meetings. Other means were by special news letter and library displays.

Approximately one-third prepared specific guides concerning lands acquired. More than one-half have engaged in projects to establish environmental education in the local schools. Assistance in developing school grounds, publicizing available curriculum materials, purchasing library books, and sponsoring award programs were the means most frequently employed.

One-third of those reporting have a member or committee responsible for environmental education.

The majority considered the promotion of environmental education as one of their responsibilities.

Central servicing and training programs were regarded as primary needs in the preparation of an environmental educational program with time and funds also essential.

CONCLUSIONS AND RECOMMENDATIONS

Nearly four-fifths are actually informing the public of their environmental projects, while only about one-half are in touch with the schools.

It is recommended that a central servicing agency and training programs for commission members be organized. (toward this end see section titled Other Task Force Activities).

3. MEDIA

Forty five replies were returned out of a total of 381 questionnaires sent, which represents 11.8% of the population sampled. One-third maintain a staff member whose primary responsibility was awareness of environmental issues, while two-thirds present one or more regular features to the public, a dozen of which are weekly.

One TV station presented a series granting 1 college credit.

Two-thirds perceived air and water pollution as major environmental issues of the future with population and solid waste also as vital concerns.

Lack of time, staff, funds and material were the chief limiting factors in promoting environmental education. A majority of those reporting recognized the importance of continuing public information.

CONCLUSIONS AND RECOMMENDATIONS

The media as a whole appears to be cognizant of their role in the environmental education of the public at large. It is recommended that the media, through a central agency, be supplied with pertinent material while they supply the time and/or space for its presentation.

SUMMARY AND OVERALL RECOMMENDATIONS

In overall summary, the fact the returns represent approximately 10% of those queried would seem to indicate that a major campaign is needed to persuade the other 90% that environmental issues are a full community concern.

Of those reporting, the need for staff, time, funds and materials and a central agency were indicated as of equal importance in summary.

The results seem to indicate that there is a substantial need among these organizations for a central servicing

agency which could be provided by the TRUST-EF, acting as a clearing house for information, professional leadership, materials and possibly some funding. Further survey and research are needed for a more complete evaluation of community environmental education.

OVERALL RECOMMENDATIONS

The committee feels that the following goals should be established throughout the Commonwealth:

1. A recognized system of access to reliable information on environmental issues and programs should be set up and maintained.

2. Citizens of the Commonwealth should be educated for an ecologically sound yet rewarding use of their increasing leisure time.

With these goals in mind, we feel that top priority should be given to the following recommendations:

A central servicing agency be set up and maintained to coordinate activities and develop training programs.

Support and encouragement of art forms such as music, drama, and architecture that create an atmosphere of environmental security.

Increased course offerings on environmental affairs from extension programs and private adult education organizations.

Teachers be trained to give such courses.

Broader utilization of community human resources such as environmental specialists, and governmental officials as educational resources in both formal and non-formal education.

Environmental training sessions and conferences for journalists, television producers, radio programs and other media specialists to help improve the depth and quality of their public products.

The Committee recommends further that:

More sophisticated environmental curriculum approaches, materials and teaching aids be developed for adult education courses.

More community organizations become involved in environmental education through the exploration of local environmental issues.

Environmental interpretations at museums, zoos, nature centers, aquaria, government parks and parklands be increased.

Centrally located drop-in centers in communities be set up to disseminate information on local environmental issues as well as such subjects as recycling, ecological disruptive products and packaging, and other facts of direct use to the concerned citizen.

Truthful advertising of products be designed and developed to improve the environment so that the consumer knows exactly what the product does and does not do.

RESPECTFULLY SUBMITTED,

John Irving, Frances Sherburne } Co-Chairmen
Augusta Bailey
John Bremer
James Laughlin
Patrick Mogan

REPORT OF THE COMMITTEE ON STATE AND FEDERAL AGENCIES

The committee charged with the identification of State and Federal agencies and agency divisions having environmental education programs contacted 268 such agencies over a three month period. Every agency, or agency division, was contacted by questionnaire.

Some points should be made at the outset regarding the sample and the methods used to code it:

1. The selection of those agencies used in the sample was made by the committee and included any agencies that the committee felt might have an environmental education program.
2. The results of the sample are as follows:

Federal:	Number sent (total)	56
	Number received	22 questionnaires representing 31 agencies
	Percentage	55%
State:	Number sent (total)	212
	Number received	74 questionnaires representing 104 agencies
	Percentage	49%

NOTE: Questionnaires were frequently sent to several divisions within one agency. In this case, however, we often received only one questionnaire back — representing all the other divisions. This was taken into account in computing the percentages above — the total number sent represents all agencies and divisions, and the percentage represents the adjusted number of responses received.

3. The main objective of this committee was not to find out if environmental education existed in any or all of these agencies, but to discover to what degree it existed.
4. Of those agencies receiving questionnaires, we shall, in this report, deal only with those indicating involvement in environmental education in the following categories:
   1. Large degree of involvement
   2. Some degree of involvement
   3. The least degree of involvement
5. For the purpose of this report, we have separated the review of the federal and state agencies.

STATE AGENCIES

Total number of questionnaires received: 74 (unadjusted)

Large degree of involvement	11
Some degree of involvement	16
Least degree of involvement	16
No involvement	31
TOTAL:	74

Observations:

From the total number of questionnaires received - 74 -, the following observations were made:

1. Those agencies having an environmental education program directed to the general public 40
2. Level of dissemination of environmental education information:
   16% — at state and national level only
   84% — greatest dissemination at community and regional level
3. Speakers were the most widely used method of training and teaching aid in environmental education programs. Conferences, films and newspapers were used frequently.
4. Thirteen of the 74 agencies were involved with one or more other agencies in an environmental education program.
5. Eighteen agencies are currently developing materials or techniques for instruction in environmental education.
6. Those agencies conducting environmental education programs for their employees 29% (22)
   These agencies use both personnel within and outside of their agency. Nine of these agencies are currently developing materials or techniques for instruction in environmental education for their own employees.

Concrete needs, suggestions and recommendations:

1. Many agencies cited lack of funding and personnel as major problems in their activities in environmental education.
2. Many agencies expressed needs for the following:
   a. Public education regarding various polluting agents in the envnironment that produce brain or neurological damage relating to developmental disabilities, i.e., lead paint, mercury, mosquito control programs, etc.
   b. Legal procedures, i.e., citizen-complaint procedures, agency complaint procedures, household ecology measures, etc.
   c. Information on state regulation agencies — their individual duties, capabilities, and the laws for which they are responsible.
   d. *Honest* information concerning popular answers to environmental questions and problems, i.e., effects of recycling, etc.
   e. Guidance regarding pesticide use.
   f. Campaign to promote use of Mass Transit.
3. Need for employees of state and federal agencies to have knowledge of programs and regulations in other agencies in order to avoid conflicts and duplications.
4. Need for conferences and re-education programs regarding specific interests as well as general environmental education for employees of various agencies.
5. Need for in-service teacher workshops on environmental education.
6. Need to develop nature trails and camping areas, and programs making use of them.
7. Need for an environmental education center to coordinate all efforts and answer requests, etc.
8. Need for programs to foster awareness of environmental issues and how they relate to the particular areas of

involvement of individual employees and departments in all areas of government and other agencies.

9. Need fulltime environmental specialists to constantly update information and programs.

FEDERAL AGENCIES

Total number of questionnaires received: 22 (unadjusted)

Large degree of involvement	9
Some degree of involvement	6
Least degree of involvement	7
TOTAL:	22

Observations:

From the total number of questionnaires received — 22 — the following observations were made:

1. Those agencies having an environmental education program directed to the general public 11
2. Level of dissemination of environmental education information:

National level	6
International	1
State and Community	6
No dissemination	11

Note: The Office of Environmental Affairs of the Dept. of State developed a program for Environmental Education and Training for the United Nations Conference on the Human Environment held in Stockholm, Sweden.

3. Speakers were the most widely used method of training and teaching aid in environmental education programs. Films, classroom lectures, conferences, newspapers and television were used frequently.
4. Six of the 22 agencies were involved with one or more other agencies in an environmental education program.
5. Eight agencies are currently developing materials or techniques for instruction in environmental education.
6. Those federal agencies conducting environmental education programs for their employees ..... 49% (9) These agencies use personnel from both within and outside of their own agency. Most use classroom lectures, inhouse publications, conferences and training programs to conduct training. Most conduct this training as needed by their employees and not on a regular basis. Six of these federal agencies are currently developing or have developed materials or techniques for instruction in environmental education for their own employees.

Concrete needs, suggestions and recommendations:

1. Need more technical awareness of various protection laws i.e., what to do when an oil spill occurs, how to prevent oil spills, proper disposal of solid waste from small crafts, use of pollution abatement techniques, use and disposal of pesticides, etc.
2. Great need for an Environmental Education Act on the State level.
3. Need greater use of already existing "package programs".
4. The public needs to be given more information regarding influences of the environment on their health, individually and on their own community.
5. Public needs to be motivated to act on existing bodies to help preserve their own health status.
6. Employees of federal and state agencies need continued training in methods for developing environmental information and for motivating other governmental agencies to action.
7. Need total involvement in environmental education through all school systems, teachers colleges, and universities, as well as teacher workshops wherein credit for taking such courses would be granted.
8. Agencies expressed a need to further instruct their employees on ways of analyzing impacts of man's actions on environmental conditions and on the long-term availability of natural resources.
9. Need an updating of information for students seeking environmental information, i.e., bicycle commuting.
10. Greater need to orient employees toward the responsibility of being a citizen.

Summary

It should be noted that the committee was not surprised over the apparent lack of environmental education, and, in particular, the lack of formal environmental education programs in the state and federal agencies. However, the questionnaire did serve as a focus on those agencies with a more structured environmental education program.

This committee feels that there is a consciousness within the state and federal agencies about environmental education, but, as with all or most state and federal programs, a lack of funds.

Therefore, the Committee on State and Federal Agencies would make the following recommendations:

1. A workable definition of environmental education must be developed. It is recognized that this definition may differ between federal — state, primary and secondary — continuing education, etc.
2. There should be a mechanism set up to do the following:
   a. identify all sources of federal and state funds applicable to the area of environment, in particular, environmental education.
   b. review and make recommendations on all existing environmental education programs at the state level.
   c. review and make recommendations (clearinghouse) on all state proposals to be sent to the federal government for funding.
   d. serve as a data bank from which agencies could draw upon information pertaining to environmental education as well as benefit from the "package programs" already in existence.
   e. develop the feasibility of a program by which agencies at both the state and federal level could draw upon the professional expertise existing in other agencies to do employee training in environmental education.
   f. investigate the possibility of *one overall* environmental education program for all agencies — conducive to sharing of personnel, resources, information, etc.
3. Such a mechanism should be quasi-governmental and

should have input from the Secretaries of Environment, Education, and Administration and Finance.

4. Increase training in methods for developing environmental information and for motivating other governmental agencies to action.
5. Increase input to state agencies from elementary and secondary, higher education, and continuing education areas.
6. This committee cannot emphasize strongly enough its recommendation that those individuals or the mechanism set up to implement the recommendations of this Task Force guard against setting up still another layer of "bureaucracy" to administer environmental education programs.

ADDITIONAL NEEDS:

Development of interpretive centers at camping areas and programs making use of them.

Training program for training personnel for interpretive centers.

Review of what facilities will be available at interpretive centers in terms of nature trails, libraries, displays and interpretive personnel.

Determine whether Department of Natural Resources should develop an environmental information and education center for such training or whether the education element should be handled by the State Department of Education or contracted out to some private organization or organizations.

Coordination with Federal programs such as the National Parks on development of interpretive areas. For example, the development of an "Outdoor Museum" in Concord, using the whole town over a broad spectrum of time and history, rather than a static display of single houses or set of houses (e.g. Old Sturbridge Village — Williamsburg).

Review of all state centers as to what should be basic and/or unique to all.

RESPECTFULLY SUBMITTED

Sydney Turner, Laurence Zuelke } Co-Chairmen
Matthew Connolly
James Moseley

REPORT OF THE COMMITTEE ON THE DEVELOPMENT OF A STATE PLANNING SYSTEM

Prior to the formation of the Task Force, the MACCE Committee on the development of a State Plan arrived at a number of conclusions as a result of their deliberations. These were:

1. No organization, public or private, existed that was of sufficient breadth and scope to plan effectively for environmental education needs in Massachusetts.
2. Funding for environmental education requires the blending of governmental, foundation, and private sources of money. This goal is difficult, if not impossible, to achieve through normal governmental channels.
3. A super-agency or bureau would tend to concentrate the state's talents in the field instead of leaving them dispersed among many varying constituencies. These constituencies are a valuable, if not vital part of the effectiveness of the various talents.
4. Coordination and cooperation by a variety of talents are needed to achieve maximum results from always limited funds and talents.
5. There are a vast number of environmental education needs within the Commonwealth. They cannot all be met at once, though they are all worthy. Priorities must be established.
6. Priorities change with changing times. A plan is obsolete when written. An on-going planning system is needed for environmental education.

With these conclusion in mind, the MACCE Committee, set as one of its goals "the design and implementation of a quasi-governmental planning and coordinating system for environmental education, which would serve our state and provide a model for others who perceived similar needs".

A start towards the development of a quasi-governmental planning, coordinating and funding organization, in the form of a Trust for Environmental Education, was designed in a draft form.

Upon the funding of the grant to further develop the state plans, a committee was formed to further refine the plans and procedures for TRUST-EE. The committee met with Mrs. Marion Freemont-Smith of Choate, Hall and Stewart, who acted as the Task Force's legal counsel in the development of the documents. With Mrs. Freemont-Smith's advice and assistance, a trust instrument was developed and "Operating procedures for the Trustees of TRUST-EE" were formulated. In addition, the necessary statements required on the form for clearance by the Internal Revenue Service were prepared. Copies of the Trust Document and the Operating Procedures can be found in Appendix V.

RESPECTFULLY SUBMITTED,

Max Bogart
Warren M. Little
Roger Marshall, Chairman
Charles E. Roth
Robert Wetmore

OTHER TASK FORCE ACTIVITIES

OPEN SPACE AND RECREATION MANAGEMENT COURSE

In addition to working in committees on developing assessment instruments, surveying target groups, and compiling results with recommendations, members of the Task Force carried out a number of other activities at the request of state agencies or educational institutions. Perhaps the most significant role which the Task Force played was in the planning, implementation and evaluation of an Open Space and Recreation Management Course for the Institute of Governmental Services at the University of Massachusetts.

In January, 1972, the Task Force received a request from Dr. Arthur W. Eve, the Associate Director of the Institute for Governmental Services at the University of Massachusetts in Amherst. Dr. Eve wished to know whether the Task Force would be willing to be involved in the design, implementation and evaluation of Leadership Training workshops in Recreation and Open Space Management for a wide range of local government officials. A verbal agreement was reached, and the details outlined in further communication in April. Funds were provided by the Institute from a grant obtained under the Intergovernmental Personnel Act of 1970. Mrs. Nancy W. Anderson was hired to coordinate the project for the Task Force.

A series of eight (8) two and one-half hour sessions were designed for an eight week period from May 9th through June 27th. The meetings were held at Tufts University in Medford, Massachusetts, on Tuesday evenings, free of charge. A Certificate of Participation was presented to those completing six out of the eight sessions.

Subjects explored included: The Ecology of Open Space and Recreation; Town Planning for Open Space and Recreation; the use of the Law in preserving open space; Regional and City Planning; Flood-Plain/Wetlands Zoning and Management; State and Federal Funding for Open Space, Conservation and Recreation.

Over ninety people from twenty-one communities and the State Departments of Community Affairs and Natural Resources signed up to take the course. Attendance averaged around sixty per class. A formal evaluation of the course has not been completed at the time of this writing. (See Appendix VI)

In addition to the course, MACCE members who were also members of the Task Force continued to work with the Department of Natural Resources in determining a site for the State's first environmental interpretive center. Meetings were held and three onsite evaluations of suggested locations were made. Recommendations were submitted in writing to the Department of Natural Resources.

Further activities of the Task Force included disseminating information on its work through meetings, speaking engagements and radio appearances by both the Chairman and the Executive Secretary. During the process of developing environmental education proposals for submisssion to USOE for funding in Spring 1972, the Executive Secretary and particularly the Chairman spent considerable amounts of time advising people on the technical requirements of P.L. 91-516 and also on the potential merits of projects in line with our then current assessment of environment education needs. Such advice was not limited to persons and groups in Massachusetts. Work of this nature was carried on with representatives of every New England state.

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WHAT GOOD IS A HOUSE WHEN THERE IS NO TOLERABLE PLANET TO PUT IT ON?

H. D. Thoreau

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